

U.S. ENVIRONMENTAL PROTECTION AGENCY
POLLUTION/SITUATION REPORT
738 Upper Mountain Road Site - Removal Polrep



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
Region II

Subject: POLREP #9
738 Upper Mountain Road Site Removal Action Planning
738 Upper Mountain Road Site
A23N
Lewiston, NY
Latitude: 43.1553400 Longitude: -79.0221310

To: Angela Carpenter, USEPA Region 02
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Date: 10/30/2019

Reporting Period: 12/13/2018 through 10/30/2019

1. Introduction

1.1 Background

Site Number:	A23N	Contract Number:	
D.O. Number:		Action Memo Date:	
Response Authority:	CERCLA	Response Type:	Time-Critical
Response Lead:	EPA	Incident Category:	Removal Assessment
NPL Status:	Non NPL	Operable Unit:	
Mobilization Date:	10/25/2016	Start Date:	10/25/2016
Demob Date:		Completion Date:	
CERCLIS ID:	NYN000206697	RCRIS ID:	
ERNS No.:		State Notification:	
FPN#:		Reimbursable Account #:	

1.1.1 Incident Category

Removal Assessment

1.1.2 Site Description

The Site consists of two parcels within a residential neighborhood. The residential home associated with the Site is 738 Upper Mountain Road, Lewiston, Niagara County, New York, 14092 (Parcel #: 115.08-1-26). The area of observed radioactively contaminated soil and rock is located on the property owned by Talarico Bros. Building Corp (TBBC-Parcel #: 115.08-1-27).

1.1.2.1 Location

738 Upper Mountain Road, Lewiston, NY 14092

1.1.2.2 Description of Threat

Unsecured radioactive slag material in a publicly accessible property. The contaminants of concern are Thorium-232 (Th-232) and Uranium-238 (U-238).

1.1.3 Preliminary Removal Assessment/Removal Site Inspection Results

The area of observed contamination is located at the entrance of the driveway that is currently utilized by the 738 Upper Mountain Road residence, although was historically used as an access road to the vacant property owned by TBBC. The residence is on a separate property from the area of contamination. The 738 UMR site is bordered to the north by Upper Mountain Road, residential properties, and a further wooded area; to the east and west by residential properties; and to the south by a wooded area.

In July 1985, members of the Radiological Survey Activities Group at Oak Ridge National Laboratory performed a radiological survey of the Site for the U.S. Department of Energy, which documented a maximum gamma exposure rate of 710 microrentgens per hour ($\mu\text{R/hr}$). The area with these readings was approximately 10 feet wide by 59 feet in length and located along a ditch and gravel residential driveway. The results of the survey were documented in a November 1986 report, in which it was stated that the gamma radiation anomaly at the Site was associated with a phosphate slag (slag) material. Biased surface soil samples collected during the survey indicated the presence of Radium-226 (Ra-226), U-238, and Th-232 at the Site. The contaminated soil and rock samples collected had approximately equal concentrations of Ra-226 and U-238, which suggested to the investigators that the rocks probably originated from a singular source. The exact origin of the material is unknown; however, in the report it was postulated that its source was some type of mineral extraction activity in the Niagara Falls area. In the report it was concluded that the anomaly at the Site was not related to materials connected with the Niagara Falls Storage Site (NFSS), including materials that were transported to NFSS.

During a reconnaissance performed by the New York State Department of Health (NYSDOH) and the New York State Department of Conservation (NYSDEC) on July 9, 2013, screening activities showed radiation

levels at 300 $\mu\text{R/hr}$ with a hand-held pressurized ion chamber. The background readings for this Site were approximately 10 $\mu\text{R/hr}$. Surveying with the sodium iodide 2x2 scintillation detector, the highest readings ranged from 105,000-110,000 counts per minute (cpm), with the estimated background readings at the Site being 9,000 cpm. Both elevated measurements were obtained at the end of the driveway adjacent to Upper Mountain Road. NYSDEC and NYSDOH referred the Site to EPA on July 21, 2013 for further assessment.

In September 2013, the EPA Region 2 Pre-Remedial Section (PRS) initiated a preliminary assessment (PA) and site inspection (SI) to assess whether the Site posed a threat to human health and the environment.

An on-site reconnaissance was conducted on September 10, 2013 to perform a gamma radiation screening. Elevated gamma readings were observed toward the end of the driveway close to the road in an approximately 45-foot by 45-foot gravel area. The readings in the area of elevated gamma radiation ranged from background levels (approximately 9,000 cpm) to greater than 300,000 cpm.

On December 12, 2013, EPA collected a total of nine soil samples (including one environmental duplicate sample) and two slag samples from the Site. Soil samples were also collected from two locations suspected to be outside the influence of the observed contamination to document background conditions. At each location, soil samples were either collected directly beneath slag material or at locations where a radioactive layer was not present, at the equivalent depth interval. The slag samples consisted of pulverized silty sand with rocks, cobbles, and gravel (i.e., radioactive waste material mixture) rather than singular pieces of slag. The soil, slag, and aqueous rinsate blank samples were analyzed by Test America Laboratories for Target Analyte List metals analyses, including Mercury; Isotopic Thorium, Isotopic Uranium, and Ra-226 by alpha spectroscopy; and other radionuclides by gamma spectroscopy. Analytical results indicated concentrations of radionuclides found in the slag and soil to be higher than at background conditions.

On May 1 and 2, 2014, EPA collected radon and thoron concentration measurements from locations on and in the vicinity of the Site. These measurements were collected with RAD7 radon detectors at selected locations in background areas, above the source material, and off the source area. The radon and thoron measurements were collected at heights of one meter above the ground surface. There were no radon or thoron concentrations that exceeded site-specific background levels.

Based on the PA and SI results, a Hazardous Ranking System (HRS) score was calculated. The calculated HRS score for the Site was less than 28.5 and, as a result, the Site did not qualify for inclusion on the NPL. The Site was referred to the Emergency and Remedial Response Division, now the Superfund and Emergency Management Division (SEMD), Removal Action Branch (RAB) for a determination as to whether the Site warranted a CERCLA removal action.

The RAB and an EPA Region 2 risk assessor utilized Site data, which included a Pre-CERCLIS Screening Form for the Site, as well as historic city directories, Sanborn maps, and analytical data collected for the Site, to conduct a preliminary removal site evaluation (RSE). In addition, an internet search for historic articles, maps, and photographs was conducted, and historic aerial photographs and online Erie County property records were reviewed. In June 2015, it was determined that conditions at the Site did not meet the requirements of Section 300.425(b) of the NCP for the undertaking of a CERCLA removal action.

On September 23, 2016, a SEMD Response Prevention Branch (RPB) On-Scene Coordinator (OSC) was assigned to conduct a reassessment of the removal eligibility of the Site with the collection of additional field data. The reassessment utilized EPA's Preliminary Remediation Goals (PRG) Calculator. PRG calculations were performed by EPA Environmental Response Team Health Physicist to determine whether the Site warranted a CERCLA removal action.

On October 25, 2016, RPB and Weston Solutions personnel performed a gamma survey at the Site. The highest gamma reading recorded was approximately 462 $\mu\text{R/hr}$ in comparison to a background reading of approximately 10 $\mu\text{R/hr}$.

On November 18, 2016, RPB and Weston Solutions personnel conducted soil sampling at several locations on the Site.

On December 06, 2016, the soil samples collected were analyzed on-site with a High-Purity Germanium Detector. Once completed, the samples were shipped to a third-party fixed analytical laboratory for analysis for isotopic Uranium and isotopic Thorium by alpha spectroscopy, 21-day in-growth for Ra-226, as well as U-238 and Th-232 decay chain progeny radionuclides by gamma spectroscopy. On February 23, 2017, the preliminary soil sample results from the fixed analytical laboratory were received.

On August 11, 2017, RPB and Weston Solutions personnel conducted an indoor gamma survey of the home located on the Site. There were no elevated gamma readings identified above background levels. A contracted radon specialist placed radon canisters throughout the home.

On August 18, 2017, the radon laboratory results were received indicating that radon levels in the building tested were below the EPA action level of 4.0 picocuries per liter. Mitigation was not recommended under the existing conditions.

The focus of this RSE was placed on analytical data from soil samples collected as part of the assessment in November 2016, the gamma survey and radon sampling results, and EPA assessment data. The highest concentrations for each radionuclide were identified.

To determine if contamination levels exceed the cancer risk of 1×10^{-4} (i.e. an increase of 1 additional person in 10,000 developing cancer), a risk assessment was performed. EPA's PRG Calculator was created to help calculate risk for various receptors at the Site, taking into consideration exposures from all potential pathways and through all media (e.g., soil, ground water, surface water, sediment, air, structures, etc.). The most conservative receptor used to calculate risk was the child/adult in a residential scenario. The overall scenario for the risk calculation consisted of a child growing into adulthood living near the contamination. Since the contamination is located near the road, the likelihood that the child/adult would grow food in the contamination was almost zero. The individual was assumed to live on the Site property for 26 years, for 6 years as child and 20 as an adult. The total risk of the Site without the removal of the contaminated material is 7.22×10^{-3} , where the risk contribution of Th-232 is 6.46×10^{-3} , and U-238 is 7.06×10^{-4} . The total risk at the Site exceeds EPA's acceptable risk range of 1×10^{-4} to 10^{-6} .

To establish a conservative cleanup value, the acceptable risk for the Site was set at 1×10^{-4} . The cleanup values for each radionuclide that correspond to a risk level of 1×10^{-4} . The PRG value for Th-232 is 5.01 picocuries per gram (pCi/g) and the PRG value for U-238 is 5.18 pCi/g. These figures represent the

cleanup values that must be achieved for both the parent and progeny radionuclide within each decay chain.

2. Current Activities

2.1 Operations Section

2.1.1 Narrative

On December 12, 2018, the Removal Site Evaluation for 738 Upper Mountain Road was finalized.

On August 29, 2019, HTC RV1 Action Memo was signed. 738 UMR Action Memo draft was revised based off HTC RV1 Action Memo and submitted to RPB Management for review.

On October 07, 2019, Talarico Brothers Property (Parcel #: 115.08-1-27) signed updated removal access document. Weston provided Certificate of Liability Insurance or the property owners.

From October 20-24, 2019: EPA OSC, Health Physicist, Public Affairs Official, Site Attorney, and Weston Technician participated in meetings at the Lewiston Town Hall regarding 738 UMR Site. Attendees included property owners and attorney, Town of Lewiston Officials, Niagara County Health Department, Niagara County Department of Transportation, NYS DEC Representatives, and NYS DOH Representatives. All parties were updated about the current proposed actions for the Site. A slag/sediment sample from the Site and sample of the clean fill stockpile from a local quarry were collected and shipped to certified labs for both radiological and non-radiological analysis. Site property boundary between the three adjoining parcels were identified and marked. Utility mark out was conducted by the town, county, and gas company to assist in planning of future excavation of the identified contaminated area. A Site walk was conducted with EPA, property owners, and the property attorney.

On October 25, 2019, ORC Management finished review of 738 Action Memo draft document.

On October 28, 2019, the Weston TD for Administrative Record was renewed.

2.1.2 Response Actions to Date

None

2.1.3 Enforcement Activities, Identity of Potentially Responsible Parties (PRPs)

PRPs are being investigated by USEPA Enforcement Team

2.1.4 Progress Metrics

<i>Waste Stream</i>	<i>Medium</i>	<i>Quantity</i>	<i>Manifest #</i>	<i>Treatment</i>	<i>Disposal</i>

2.2 Planning Section

2.2.1 Anticipated Activities

Coordination with property owner/attorney, local, county, and state representatives

2.2.1.1 Planned Response Activities

Excavation and proper transport/disposal of radioactive contaminated material at 738 Upper Mountain Road Site as per the approved disposal facility waste acceptance criteria. Tentative start, Winter/Spring 2020.

2.2.1.2 Next Steps

Finalize Action Memo

Request funding

ERRS selection

Determine removal mobilization date

2.2.2 Issues

None

2.3 Logistics Section

No information available at this time.

2.4 Finance Section

No information available at this time.

2.5 Other Command Staff

No information available at this time.

3. Participating Entities

3.1 Unified Command

3.2 Cooperating Agencies

4. Personnel On Site

OSC Daly
Public Affairs Official-Mike Basille
EPA ERT Health Physicist Lyndsey Nguyen
Weston Technician

5. Definition of Terms

Background Information on Radioactive Contamination

Concepts

Elements within the periodic table are comprised of both unstable and stable forms. Unstable elements are known as "radionuclides," and they give off radiation in the form of a wave (i.e., gamma radiation) or particle (e.g., alpha radiation or beta radiation) to become more stable. The time it takes for radionuclides to become stable can range from seconds to billions of years. Long-lived radionuclides, such as Thorium and Uranium, have always been present within the Earth's crust and within the tissues of all living species. Material that contains radionuclides in their natural form is known as naturally occurring radioactive material, commonly referred to as "NORM," which contributes to background radiation levels. Examples of NORM include sands, clays, soils, rocks, coal, groundwater, oil and gas, as well as metal ores and non-metal minerals.

NORM may become concentrated or exposed to the accessible environment as a result of human activities such as manufacturing, mineral extraction, or water processing. The resulting material is known as Technically Enhanced Radioactive Material or "TENORM." EPA has defined "Technologically Enhanced" to mean that the "radiological, physical, and chemical properties of the radioactive material have been concentrated or further altered by having been processed, or beneficiated, or disturbed in a way that increases the potential for human and/or environmental exposures." The contamination found at the Site qualifies as TENORM.

The extraction of precious metal and/or rare earth material from ore can result in the presence of TENORM in waste and/or product. Historically, radioactive waste at mines and mineral processing or manufacturing facilities was often regarded as non-hazardous material and was disposed of improperly. Some facilities sold or disposed of such waste as fill for construction projects, including the construction of roads and parking lots. The Site is one location where contaminated waste material was used as fill.

Terminology

To evaluate land and/or buildings that are potentially contaminated with radioactive materials, a variety of instrumentation must be used. When performing an initial scoping survey, the extent of the contamination (i.e., how widespread the contamination is at the Site), as well as the intensity of the radiation (i.e., which areas/locations contribute to the greatest risk or dose) must be identified. Hand-held and portable equipment such as sodium iodide detectors, Geiger Mueller counters, proportional detectors, and/or ion chambers may be used as field equipment to determine the extent of contamination and/or dose or exposure rates of gamma radiation. In general, most of these pieces of equipment are used qualitatively, and resulting data is compared to background readings to determine the extent and intensity of contamination and whether further investigation is needed. Examples of units used for qualitative measurements include counts per minute for contamination, $\mu\text{R/hr}$ for exposure rate, or millirem per hour (mrem/hr) for dose rate measurements.

In most cases, the equipment used to collect qualitative measurements may not provide an accurate or precise measurement of the quantity of contamination because of less efficient detectors used, geometry effects of instrumentation setup, and/or shorter counting time. Qualitative measurements should always be paired with quantitative data when characterizing a site that has been contaminated with radioactive materials. Quantitative data can be used to verify or correlate the qualitative instrumentation reading. This is commonly referred to as "ground truthing." To obtain quantitative measurements, air, water, sediment, soil, and/or vegetation samples are taken from areas of known or suspected contamination and analyzed by a laboratory. The units for quantitative measurements are pCi/g for soil samples and pCi/liter for radon samples. For the Site cleanup, only quantitative measurements are used to provide more definitive results and to verify cleanup has been completed.

Risk Calculation

Remedial actions selected at sites need to meet the risk requirements of 1×10^{-4} to 1×10^{-6} . Because removal actions are distinct from the remedial program, the removal actions are not required to meet this requirement for site cleanup. However, in recent years, EPA has encouraged removal cleanups to meet, at a minimum, the remedial cleanup values associated with the 1×10^{-4} carcinogenic risk based on the reasonable maximum exposure for an individual. To determine if contamination levels exceed the cancer risk of 1×10^{-4} (i.e., conditions present that would result in an increase of 1 additional person in 10,000 developing cancer), a risk assessment must be performed. EPA's PRG Calculator was created to help calculate risk versus cleanup levels for various receptors, taking into consideration exposures from all potential pathways and through all media (e.g., soil, groundwater, surface water, sediment, air, structures, etc.).

6. Additional sources of information

No information available at this time.

7. Situational Reference Materials

No information available at this time.